Patent claims

1.   An ECG system for large-surface recording of ECG
signals, characterized by
a first measuring means (10) for generating a first
measured data record including at least one reading of
the cardiac currents, at least one lead site of the
first measuring means (10) being variable during the
recording of the large-surface ECG signals,
a second measuring means (20) for simultaneously
generating a second measured data record including at
least one reading of the cardiac currents, the lead
site of the second measuring means (20) being spatially
invariable during the recording of the large-surface
ECG signals in order to obtain continuous measurement
results, and
a data processing system (30) having a means for
synchronizing at least two signals, determined in a
temporally offset fashion, of the first measured data
record with at least one continuously detected signal
of the second measured data record.

2.   The ECG system as claimed in claim 1,
characterized in that the first measured data record
includes measurements of cardiac currents that have
been obtained at thorax leads (V_1 - V_6).

3.   The ECG system as claimed in claim 1 or 2,
characterized in that the first measured data record
includes measurements of the cardiac currents from a
temporal sequence of thorax leads (V_1 - V_6) at different
thorax positions.

4.   The ECG system as claimed in at least one of the
preceding claims, characterized in that the second

measured data record includes at least one measurement of the cardiac currents of an extremity lead (I, II, III, aVR, aVL, aVF).

5   5.   The   ECG   system   as   claimed   in   claim 4, characterized in that the second measured data record includes signals of the cardiac currents of all the extremity leads (I, II, III, aVR, aVL, aVF).

10   6.   The ECG system as claimed in at least one of the preceding   claims,   characterized   in   that   the synchronization is performed with the aid of at least one prominent signal pattern of the second measured data record.

15

7.   The   ECG   system   as   claimed   in   claim 6, characterized in that the means for synchronizing uses the signal of an R wave in the second measured data record for the purpose of synchronization.

20

8.   The   ECG   system   as   claimed   in   claim 7, characterized in that the means for synchronizing uses the signal of the rise in the R wave in the second measured   data   record   for   the   purpose   of

25   synchronization.

9.   The   ECG   system   as   claimed   in   at   least   one claims, 6 to 8, characterized in that the means for synchronizing uses prominent signal markers of a number

30   of measured ECG channels.

10.   The ECG system as claimed in at least one of the preceding claims, characterized by a filter, a means for averaging and/or for determining the median for

35   signals of the first measured data record and/or of the second measured data record.

11.   The ECG system as claimed in at least one of the preceding   claims,   characterized   by   a   means   for

40   correcting the baseline of individual cardiac currents.

12. The ECG system as claimed in at least one of the preceding claims, characterized in that the data processing system (30) can use the amplitude values of all the thorax readings to determine a graphic display of the instantaneous potential distribution automatically for any desired instant of a measurement relative to a time reference obtained by means of a signal of the second measured data record.

13. The ECG system as claimed in claim 12, characterized in that the graphic display is a QRST integral map display.

14. The ECG system as claimed in at least one of the preceding claims, characterized in that the first measuring means (10) and/or the second measuring means (20) are/is arranged in a contrivance, in particular a vest, that can be worn on the human body.

15. The ECG system as claimed in at least one of the preceding claims, characterized in that a variance of measurement results can be ascertained as a validity characteristic by means of the data processing system (30).

16. The ECG system as claimed in claim 15, characterized in that the variance of the measurement results can be ascertained with the aid of a measure of specific ECG potential levels, in particular R-R intervals, QT times and/or of a comparison of a mean value of a measure of an ECG potential level of one measurement phase with the mean value for measures of ECG potential levels of all the measurement phases.

17. A method for large-surface recording of ECG signals,
characterized by

recording at least one first measurement of the cardiac
currents with the aid of a first measuring means (10),
at least one lead site of a first measuring means (10)
being varied during recording of the large-surface ECG
5 signals,
simultaneously recording at least one second
measurement of the cardiac currents with the aid of a
second measuring means (20), the lead site of the
second measuring means (20) being spatially invariable
10 during recording of the large-surface ECG signals for
the purpose of continuous measurement,
the first and second measuring means (10, 20)
generating a first measured data record and a second
measured data record,
15 and immediately or at a later instant, at least two
signals, determined in a temporally offset fashion, of
the cardiac currents of the first measured data record
being automatically synchronized in a data processing
system (30) with at least one continuously determined
20 signal of the second measured data record of the
cardiac currents.

18. The method as claimed in claim 17, characterized
in that at least two first readings are obtained on the
25 thorax in a fashion separated by an intercostal
spacing, in particular for the purpose of simulating a
body surface potential mapping.